REMARKS

The Office Action of May 6, 2003 has been reviewed and the Examiner's comments carefully considered. Claims 8-13 are currently pending in this application. Claims 8-10 and 12-13 stand rejected under 35 U.S.C. 102(e) as assertedly being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as assertedly obvious over Miura et al., and claim 11 stands rejected under 35 U.S.C. 103(a) as assertedly obvious over Miura et al. In view of the following remarks, Applicants believe that all the asserted rejections are in condition for withdrawal and all the claims are in condition for allowance.

The present invention as claimed inheres in method steps for selectively changing the valence of a rare earth or transition metal ion at a specified inner part of an inorganic body which contains the rare earth and/or transition metal ion, using a condensed pulsed laser beam having a wavelength which is different from the absorption wavelength of the rare earth and/or transition metal ion. The repetition rate of the pulsed laser beam may vary from as low as 1 kHz to 200kHz or more. The ionic valence changed domain is shaped into a two or three dimensional pattern either by shifting the focal point of the laser beam along an X, Y and/or Z direction, shifting the inorganic body along an X, Y and/or Z direction, or shifting both the focal point and the inorganic body. In this way, an ionic valence change domain can be shaped precisely according to a predetermined pattern. Thus, the condensing irradiation induces, at the focal point and its vicinity, a valence change of the rare earth and/or transition metal ion.

In contrast to the above, Miura et al. disclose changing the refractive index of glass by irradiating the glass with an excimer laser beam, in which the glass is continuously

moved with respect to the focal point of the laser beam so as to form a continuous refractive index changed region through the glass. An excimer laser beam is a particular type of pulsed laser beam which emits radiation only in the ultraviolet wavelength range. Thus, Miura et al. neither teach nor suggest the use of a pulsed laser beam to change the valence of rare earth and/or transition metal ions in a specified portion of an inorganic body, because they do not even address changing valences.

The Examiner asserts that the term "light absorbing device" would be inherent in the waveguides of Miura et al. and directs Applicants' attention to Yoshino et al. Applicants point out that merely because optical devices, such as waveguides, have light-absorbing and/or transmitting properties, this general characteristic does not teach or suggest inherently the novel method of the claimed invention which provides for selectively changing the valence of rare earth or transition metal ions in a specified inner part of an inorganic body via the use of condensed pulsed laser beams. Indeed, the waveguide taught by Yoshino et al. requires that a substrate is irradiated with a laser beam having a wavelength that is the same as the absorption wavelength of the substrate, in contrast to the claimed invention which requires that the laser beam wavelength be different from the absorption wavelength of the rare earth and/or transition metal ions. Lastly, valence ion changes in specified parts of the inner portion of a substrate are required predominantly for optical devices as provided for in the claimed invention, such as optical memory devices, and would not be contemplated as a desirable aspect in a waveguide.

Applicants therefore submit that Miura et al. neither teach nor suggest the new and unexpected properties of the claimed invention which result from selectively changing the

valence of a rare earth or transition metal ion at a specified inner domain of an inorganic body or substrate using condensed pulsed laser beams at wavelengths different from the absorption wavelength of the ions.

Under the circumstances of the instant patent application, the Examiner should not retain any concerns regarding inherency of the present claims in the prior art. The collected prior art not only does not recognize, but does not even address at all, the potential valence change which a condensed pulsed laser beam (of wavelength different from the absorption wavelength of the ion to be affected) can achieve. By failing to address valence change issues, or even to observe any valence changes which the Examiner urges to be coincidental, Miura et al. cannot inherently disclose the present method. In *Eibel Process Co. v. Minnesota & Ontario Paper Co.* (1923), the Supreme Court held that accidental results, not intended and not appreciated, do not constitute anticipation. Eibel's patent claimed an improved paper making machine. Eibel's improvement of existing machines was simple, and involved elevating a part of the machine to add several degrees of pitch. However, the small change made a dramatic improvement in efficiency. The defendant relied on prior machines that introduced some pitch for a different purpose. The Court held that the evidence did not support the existence of any such pitch but that even if it had, accidental results, not intended and not appreciated, do not constitute anticipation. In the instant case, any suggestion of the prior art--that lasers of various kinds could be focused on solid objects for the purpose of treating their interiors for some reason—does not rise to the level of identifying the ability of a pulsed laser beam to realize a method for changing the valence of a rare earth

or transition metal ion at a specified inner part of an inorganic body. Such a teaching is simply absent from the prior art in the present application.

For all the foregoing reasons, claims 8-13 are patentable over the cited prior art and in condition for allowance. Reconsideration of the rejections and allowance of all pending claims 8-13 is respectfully requested.

Respectfully submitted,

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